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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,095	07/11/2003	Kristofer J. James	279.645US1	3840
21186	7590	12/19/2005		EXAMINER
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH 1600 TCF TOWER 121 SOUTH EIGHT STREET MINNEAPOLIS, MN 55402			TIBBITS, PIA FLORENCE	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/618,095	JAMES ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Pia F. Tibbits	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 October 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8 and 10-30 is/are rejected.
- 7) Claim(s) 9 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06 April 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

**DETAILED ACTION**

This Office action is in answer to the amendment filed 10/17/2005. Claims 1-30 are pending.

***Drawings***

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the originally filed drawings are informal. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

**Art Rejection Rationale**

2. At the outset, the examiner notes that claims are to be given their broadest reasonable interpretation in light of the supporting disclosure. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ 2d 1320, 1322 (Fed. Cir. 1989); *In re Prater*, 415 F.2d 1393, 1404, 162 USPQ 541, 550 (CCPA 1969); *In re Yamamoto*, 740 F.2d 1569, 222 USPQ 934 (Fed. Cir. 1984); *Burlington Indus. V. Quigg*, 822 F.2d 1581, 3 USPQ 2d 1436 (Fed. Cir. 1987); *In re Morris*, 43 USPQ 2d 1753, 1756 (Fed. Cir. 1997). ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process."). In responding to this Office action, applicants are reminded of the requirements of 37 CFR 1.111 and 1.119 that applicants specifically point out the specific distinctions believed to render the claims patentable over the references in presenting responsive arguments. See MPEP 714.02. The support of any amendments made should also be specifically pointed out. See MPEP 2163.06.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 16 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by disclosed prior art, **Kroll et al.** [hereinafter Kroll][5904705].

As to claim 1, Kroll discloses in figures 1-12 an apparatus and method comprising drawing a substantially constant current pulse from an energy storage cell [see fig.5] during a time period 10s [see column 4, line 5]; measuring a change of a terminal voltage/cell voltage [see fig.4] across the cell during the time period; and comparing the measured change to stored data/no load v. loaded [see fig.4] to determine the energy remaining in the cell [see fig.4].

With regard to the limitation of having a first time period including a starting time and an ending time: it is an inherent function of a (defibrillation shock) pulse to include a starting time and an ending time, and MPEP 2100 states that the disclosure of a limitation may be expressed, implicit or **inherent**.

As to claims 3, 16, 30, see remarks and reference above.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above, in view of prior art disclosed by applicant **WO-9402202**[hereinafter WO94].

As to claim 2, Kroll does not disclose a manganese dioxide battery.

WO94 discloses Medtronic Model 2315 employing manganese dioxide batteries to improve pulsed performance [see page 3]. Therefore, it would have been obvious to a person having ordinary skill in the

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art at the time the invention was made to modify Kroll's apparatus and include a silver vanadium oxide battery, as disclosed by WO94, in order to improve pulsed performance of the battery.

As to claim 15, see remarks and references above.

7. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above.

As to claim 4, Kroll discloses drawing pulses of 2A each [see column 4, line 5]. Kroll does not disclose the current pulse comprises drawing a substantially constant current of approximately between 2 amperes and 4 amperes.

With regard to the range of the current pulse comprising drawing a substantially constant current of approximately between 2 amperes and 4 amperes, absent any criticality, is only considered to be the use of "optimum" range for the current pulse, that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum range value of a result effective variable involves only routine skill in the art in order to provide guidance to an application specific data. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also **MPEP 2144.05** statement with regard to "**obviousness of ranges**".

As to claim 5, see remarks and reference above.

8. Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as described above.

As to claim 6, Kroll discloses a time period of 10 seconds [see column 4, line 5]. Kroll does not disclose the time period is approximately between 3 seconds and 30 seconds.

With regard to claim 6: the range of the time period being approximately between 3 seconds and 30 seconds, absent any criticality, is only considered to be the use of "optimum" range for the time period, that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum range value of a result effective variable involves only routine skill in the art in order to provide guidance

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to an application specific data. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also

**MPEP 2144.05** statement with regard to “**obviousness of ranges**”.

As to claim 7, see remarks for claim 6 above.

9. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above, in view of NPL document, “**Handbook of Batteries**” by **David Linden** [hereinafter **Linden**].

As to claim 8, Kroll does not disclose the change comprises measuring a polarization angle.

Linden describes in fig.2.1 a polarization angle  $\eta$ , and discloses that the useful voltage/energy delivered by the cell is reduced by polarization [see page 2.2]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kroll’s method and include measuring a polarization angle, as disclosed by Linden, in order to accurately asses the useful voltage/energy delivered by the battery.

As to claim 17, see remarks and references above.

10. Claims 10-12, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above, in view of **Traub** [6696842].

As to claim 10, Kroll discloses measuring a quiescent/no load voltage of the cell [curve 37], Kroll does not disclose comparing the measured quiescent voltage to a predetermined threshold  $U_{ref}$  to distinguish between the two different stored capacity values that correspond to the single change in terminal voltage across the cell [see fig.9].

Traub discloses that it is known to determine a battery charging condition by means of a quiescent voltage measurement. The patent describes detecting a quiescent voltage measurement before the starting operation in order to be able to differentiate by means of the analysis of this quantity between a poor charging condition and a high wear when, during the starting operation, the battery voltage is below a defined voltage threshold. A poor charging condition is detected when previously there was a falling below a defined quiescent voltage threshold. A high wear is detected when previously the defined quiescent voltage threshold was exceeded [see column 1, lines 23-25; column 2, lines 18-

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28]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kroll's apparatus and include measuring a quiescent voltage of the cell, and comparing the measured quiescent voltage to a predetermined threshold, as disclosed by Traub, in order to distinguish between the two different stored capacity values that correspond to the single change in terminal voltage across the cell and to detect the wear condition of the battery.

As to claim 11, see remarks for claim 10 above.

As to claim 12, Kroll and Traub do not disclose using the measured change to determine the energy remaining in the cell during an earlier portion of a life of the cell, and using the measured quiescent voltage to determine the energy remaining in the cell during a later portion of the life of the cell. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the frequency and the timing of measurements for the quiescent voltage of the battery in order to accommodate a specific battery use application, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 18 and 19, see remarks for claims 10-12 above.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above.

As to claim 13, Kroll discloses drawing a substantially constant second current pulse from the cell during a different second time period, measuring a second change in the terminal voltage across the cell during the second time period. Kroll does not disclose specifically comparing the measured second change to first stored data to determine an energy remaining in the cell, including comparing the first and second changes to distinguish between two different stored capacity values that correspond to a single change in the terminal voltage across the cell. However, Kroll discloses in fig. 4 the change in cell voltage with discharge of the cell, in fig. 9 a stored capacity/Uref input to a comparator, and in fig. 8 a microprocessor receiving data. It would have been obvious to one having ordinary skill in the art at the time the invention was made to compare the measured second change to first stored data to determine

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an energy remaining in the cell, including comparing the first and second changes to distinguish between two different stored capacity values that correspond to a single change in the terminal voltage across the cell, since discharge pulses to a constant background load were simulated and the changes plotted in fig.4.

12. Claims 20, 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll**, as disclosed above, in view of **Barreras et al.** [hereinafter Barreras] [4556061].

Kroll discloses a system comprising an energy storage cell 13; a current source/sink circuit 30, coupled to the cell, to draw a substantially constant first current pulse; a voltage measurement circuit V, coupled to the cell, to measure first and second voltages during the first current pulse and a processor circuit  $\mu p$ , the processor circuit including a memory circuit RAM/ROM, a difference circuit/comparator coupled to the voltage measurement circuit V, to compute a difference between the first and second voltages; and the processor circuit  $\mu p$  coupled to the difference circuit, the processor memory circuit to store first data relating cell capacity to the difference between the first and second voltages [see figures 4,5,8,9]. Kroll does not disclose the memory circuit also including a cell capacity indicator storage location to provide an indication of cell capacity, the processor configured to use the difference between the first and second voltages obtained from the difference circuit and the stored first data indicative of cell capacity to provide the indication of cell capacity.

Barreras discloses that monitor apparatus 14 external to the body and viewable by the patient or the attending physician can monitor operation of a pacer. The monitoring apparatus 14 includes a digital readout 15 on which an indication of consumed battery capacity is provided [see column 2, lines 46-50]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kroll's apparatus and include a monitor apparatus including a digital readout 15, as disclosed by Barreras, in order to have an indication of consumed battery capacity for the patient or the attending physician.

As to claims 22-28, see remarks and references above.

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As to claim 29, the processor is located within an external remote interface device: with regard to the particular location of the processor, i.e., within an external remote interface device, absent any criticality, is only considered to be an obvious modification as it has been held by the courts that there would be no invention in shifting the location of a structure of a device to another location if the operation of the device would not thereby be modified. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) MPEP 2144.04.

13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kroll and Barreras**, as disclosed above, in view of prior art disclosed by applicant **WO94**, as disclosed above.

As to claim 21, Kroll and Barreras do not disclose a manganese dioxide battery.

WO94 discloses Medtronic Model 2315 employing manganese dioxide batteries to improve pulsed performance [see page 3]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kroll's and Barreras' apparatus and include a silver vanadium oxide battery, as disclosed by WO94, in order to improve pulsed performance of the battery.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

#### **Response to Arguments**

15. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

***Allowable Subject Matter***

16. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 9: none of the references of record prior to applicant's filing date discloses, teaches, or suggests a method comprising, *inter alia*, measuring a first terminal voltage across the cell just after the starting time; measuring a second terminal voltage across the cell just before the ending time; and dividing a difference between the first and second terminal voltages by a time difference between the measurements.

***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is 571-272-2086. If unavailable, contact the Supervisory Patent Examiner Karl Easthom whose telephone number is 571-272-1989. The Technology Center Fax number is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

December 8, 2005

Pia Tibbits

Primary Patent Examiner